Form Approved. O.M.B. Nos. 2070-0012 and 2070-0038

U.S. ENVIRONMENTAL PROTECTION AGENCY			AGENCY USE ONLY
EPA	**PREMANUFACTURE NOTICE** **FOR NEW CHEMICAL SUBSTANCES**		Date of receipt:
When completed, send this form to:	**If sending by Courier:** Office of Pollution Prevention and Toxics Document Control Office (7407M) US EPA, 1201 Constitution Ave NW WASHINGTON, D.C. 20460 Contact Numbers: 202-564-8930/8940	**If sending by US Mail:** Office of Pollution Prevention and Toxics Document Control Office (7407M) US EPA, 1200 Pennsylvania Ave NW WASHINGTON, D.C. 20460	**Submission Report Number** CASX110721634289920

Total Number of Pages	User Fee Payment ID Number	TS Number
922		

GENERAL INSTRUCTIONS

- You must provide all information requested in this form to the extent that it is known to or reasonably ascertainable by you. Make reasonable estimates if you do not have actual data.
- Before you complete this form, you should read the "Instructions Manual for Premanufacture Notification" (the Instructions Manual is available from the Toxic Substances Control Act (TSCA) Information Service by calling 202-554-1404, or faxing 202-554-5603).
- If a user fee has been remitted for this notice (40 CFR 700.45), indicate in the boxes above the TS-user fee identification number you have generated. Remember, your user fee ID number must also appear on your corresponding fee remittance. For mailing address information see the Help instructions in the e-PMN tool.

Part I – GENERAL INFORMATION

You must provide the currently correct Chemical Abstracts (CA) Name of the new chemical substance, even if you claim the identity as confidential. You may authorize another person to submit chemical identity information for you, but your submission will not be complete and the review will not begin until EPA receives this information. A letter in support of your submission should reference your TS user fee identification number. For all Section 5 Notice submissions (paper or electronic) you must submit an original notice including all test data; if you claimed any information as confidential, an original sanitized copy must also be submitted.

Part II – HUMAN EXPOSURE AND ENVIRONMENTAL RELEASE

If there are several manufacture, processing, or use operations to be described in Part II, sections A and B of this notice, reproduce the sections as needed.

Part III – LIST OF ATTACHMENTS

For paper submissions, attach additional sheets if there is not enough space to answer a question fully. Label each continuation sheet with the corresponding section heading. In Part III, list these attachments, any test data or other data and any optional information included in the notice.

OPTIONAL INFORMATION

You may include any information that you want EPA to consider in evaluating the new substance. On page 11 of this form, space has been provided for you to describe pollution prevention and recycling information you may have regarding the new substance. "Binding" boxes are included throughout this form for you to indicate your willingness to be bound to certain statements you make in this section, such as use, production volume, protective equipment . . . The intention is to reduce delays that routinely accompany the development of consent orders or Significant New Use Rules. Checking a "binding" box in a PMN does not by itself prohibit the submitter from later deviating from the information (except chemical identity) reported in the form; however, in the case of exemption applications (such as TMEA, LVE, LOREX) certain information provided in such notifications is binding on the submitter when the Agency approves the exemption application, especially if the production volume "binding" box is chosen in a LVE.

CONFIDENTIALITY CLAIMS

You may claim any information in this notice as confidential. To assert a claim on the form, mark (X) the confidential box next to the information that you claim as confidential. To assert a claim in an attachment, circle or bracket the information you claim as confidential. If you claim information in the notices as confidential, you must also provide a sanitized version of the notice, (including attachments). For additional instructions on claiming information as confidential, read the Instructions Manual.

TEST DATA AND OTHER DATA

You are required to submit all test data in your possession or control and to provide a description of all other data known to or reasonably ascertainable by you, if these data are related to the health and environmental effects on the manufacture, processing, distribution in commerce, use, or disposal of the new chemical substance. Standard literature citations may be submitted for data in the open scientific literature. Complete test data (written in English), not summaries of data, must be submitted if they do not appear in the open literature. You should clearly identify whether test data is on the substance or on an analog. Also, the chemical composition of the tested material should be characterized. Following are examples of test data and other data. Data should be submitted according to the requirements of §720.50 of the Premanufacture Notification Rule (40 CFR Part 720).

Test Data (Check Below any included in this notice)

X	Environmental fate data	☐	Other Data
X	Health effects data	☐	Risk Assessments
X	Environmental effects data	☐	Structure/activity relationships
X	Physical/Chemical Properties (A physical and chemical properties worksheet is located on the last page of this form.)		
☐	Test data not in the possession or control of the submitter		

TYPE OF NOTICE (Check Only One)

- ☐ **PMN** (Premanufacture Notice)
- ☐ **SNUN** (Significant New Use Notice)
- ☐ **TMEA** (Test Marketing Exemption Application)
- [X] **LVE** (Low Volume Exemption) @ 40 CFR 723.50(c)(1)
- ☐ **LOREX** (Low Release/Low Exposure Exemption) @ 40 CFR 723.50(c)(2)
- ☐ **LVE** Modification
- ☐ **LOREX** Modification
- ☐ **Mock Submission**
- ☐ Mark (X) if pending Letter of Support

IS THIS A CONSOLIDATED PMN (Y/N)? ____

# of chemicals or polymers (Prenotice Communication # required, enter # on p. 3). ____

[X] Mark (X) if any information in this notice is claimed as confidential.

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CERTIFICATION -- A printed copy of this signature page, with original signature, must be submitted with CD or paper submission.

I certify that to the best of my knowledge and belief:

1. The company named in Part I, section A, subsection 1a of this notice form intends to manufacture, import or process for a commercial purpose, other than in small quantities solely for research and development, the substance identified in Part I, Section B.
2. All information provided in this notice is complete and truthful as of the date of submission.
3. I am submitting with this notice all test data in my possession or control and a description of all other data known to or reasonably ascertainable by me as required by §720.50 of the Premanufacture Notification Rule.

Additional Certification Statements:

If you are submitting a PMN, Intermediate PMN, Consolidated PMN, or SNUN, check the following **user fee** certification statement that applies:

☐	The Company named in Part I, Section A has remitted the fee of $2500 specified in 40 CFR 700.45(b), or
☐	The Company named in Part I, Section A has remitted the fee of $1000 for an Intermediate PMN (defined @ 40 CFR 700.43) in accordance with 40 CFR 700.45(b), or
☐	The Company named in Part I Section A is a small business concern under 40 CFR 700.43 and has remitted a fee of $100 in accordance with 40 CFR 700.45(b).

If you are submitting a **Low Volume Exemption (LVE)** application in accordance with 40 CFR 723.50(c)(1) or a **Low Release and Low Exposure Exemption (LoRex)** application in accordance with 40 CFR 723.50(c)(2), check the following certification statements:

☒	The manufacturer submitting this notice intends to manufacture or import the new chemical substance for commercial purposes, other than in small quantities solely for research and development, under the terms of 40 CFR 723.50.
☒	The manufacturer is familiar with the terms of this section and will comply with those terms; and
☒	The new chemical substance for which the notice is submitted meets all applicable exemption conditions.
☒	If this application is for an LVE in accordance with 40 CFR 723.50(c)(1), the manufacturer intends to commence manufacture of the exempted substance for commercial purposes within 1 year of the date of the expiration of the 30 day review period.

The accuracy of the statements you make in this notice should reflect your best prediction of the anticipated facts regarding the chemical substance described herein. Any knowing and willful misrepresentation is subject to criminal penalty pursuant to 18 USC 1001.				Confidential
Signature and title of Authorized Official (Original Signature Required)		Date		☐

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Part I -- GENERAL INFORMATION

Section A – SUBMITTER IDENTIFICATION

Mark (X) the "Confidential" box next to any subsection you claim as confidential

1a.	Person Submitting Notice (in U.S.)					Confidential
Name of Authorized Official	(first) Jim		(last) McGinley			
Position	President					
Company	Songwon International - Americas, Inc.					☐
Mailing Address (number & street)	211 East Parkwood Avenue, Suite 101					
City	Friendswood	State	TX	Postal Code	77546	
email	jmcginley@songwonind.biz					

b.	Agent (if Applicable)					Confidential
Name of Authorized Official	(first)		(last)			
Position						
Company						☐
Mailing Address (number & street)						
City		State		Postal Code		
e-mail		Telephone (include area code)				

c.	Joint Submitter (if applicable)					Confidential
If you are submitting this notice as part of a joint submission, mark (X)					☐	
Name of Authorized Official	(first)		(last)			
Position						
Company						☐
Mailing Address (number & street)						
City		State		Postal Code		
e-mail		Telephone (include area code)				

2.	Technical Contact (in U.S.)					Confidential
Name of Authorized Official	(first) Jim		(last) McGinley			
Position	President					
Company	Songwon International - Americas, Inc.					☐
Mailing Address (number & street)	211 East Parkwood Avenue, Suite 101					
City	Friendswood	State	TX	Postal Code	77546	
e-mail	jmcginley@songwonind.biz	Telephone (include area code)			877-766-4966	

			Mark (X) if none	Confidential
3.	If you have had a prenotice communication (PC) concerning this notice and EPA assigned a PC Number to the notice, enter the number.		☒	☐
4.	If you previously submitted an exemption application for the chemical substance covered by this notice, enter the exemption number assigned by EPA. If you previously submitted a PMN for this substance enter the PMN number assigned by EPA (i.e. withdrawn or incomplete).		☒	☐
5.	If you have submitted a notice of Bona fide intent to manufacture or import for the chemical substance covered by this notice, enter the notice number assigned by EPA.		☒	☐

6.	Type of Notice – Mark (X)						
1.	Manufacture Only ☐ Binding Option ☐	2.	Import Only ☒ Binding Option ☐	3.	Both ☐		

Part I – GENERAL INFORMATION -- Continued

Section B – CHEMICAL IDENTITY INFORMATION: You must provide a currently correct Chemical Abstracts (CA) name of the substance based on current CA index nomenclature rules and conventions.

Mark (X) the "Confidential" box next to any item you claim as confidential

Complete either item 1 (Class 1 or 2 substances) or 2 (Polymers) as appropriate. Complete all other items.

If another person will submit chemical identity information for you (for either Item 1 or 2), mark (X) the box at the right. Identify the name, company, and address of that person in a continuation sheet. ☐

1. Class 1 or 2 chemical substances (for definitions of class 1 and class 2 substances, see the Instructions Manual)	Class 1	Class 2	CBI
a. Class of substance - Mark (X)	☐	☒	☐

b. Chemical name (Currently correct Chemical Abstracts (CA) Name that is consistent with TSCA Inventory listings for similar substances. For Class 1 substances a CA Index Name must be provided. For Class 2 substances either a CA Index Name or CA Preferred Name must be provided, which ever is appropriate based on current CA index nomenclature rules and conventions). ☐

Phosphoric trichloride, reaction products with biphenol and phenol

CAS Registry Number (if a number already exists for the substance): 1095608-65-3

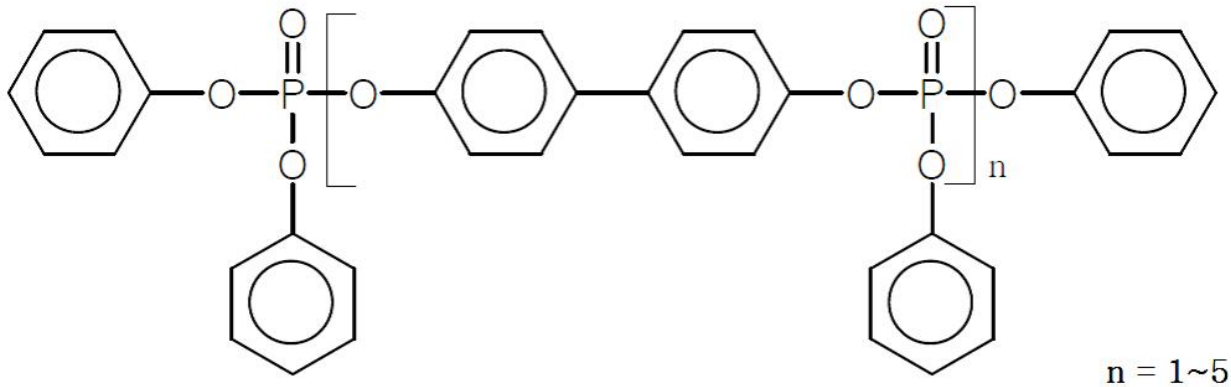
c. Please identify which method you used to develop or obtain the specified chemical identity information reported in this notice: (check one).

Method 1 (CAS Inventory Expert Service - a copy of the Identification report obtained from the CAS Inventory Expert Services must be submitted as an attachment to this notice) ☒ | IES Order Number: 131100 | **Method 2** (Other Source) ☐

Enter Attachment filename for Part I, Section B, 1. c.: 14 2 09_complete_cas_assign.pdf ☐

d. Molecular formula: C36H28O8P2 (n=1) ☐

e. For a class 1 substance, provide a complete and correct chemical structure diagram. For a class 2 substance, provide a correct representative or partial chemical structure diagram, as complete as can be known, if one can be reasonably ascertained. ☐



Enter Attachment filename for Part I, Section B, 1. e.: structure - Songflame TP-100.jpg ☐

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For a class 2 substance - (1) List the immediate precursor substances with their respective CAS Registry Numbers. (2) Describe the nature of the reaction or process. (3) Indicate the range of composition and the typical composition (where appropriate).	Confidential

e. (1) List the immediate precursor substance names with their respective CAS Registry Numbers. [X]

XXX

Enter Attachment filename for Part I, Section B, 1. e. (1)		

e. (2) Describe the nature of the reaction or process. [ ]

see attachment 24

Enter Attachment filename for Part I, Section B, 1. e. (2)	Songwon Songflame TP100 - Reactiondiagramm.-sanitized.jpg	

e. (3) Indicate the range of composition and the typical composition (where appropriate). [X]

XXX

Enter Attachment filename for Part I, Section B, 1. e. (3)		

Part I -- GENERAL INFORMATION – Continued

Section B -- CHEMICAL IDENTITY INFORMATION -- Continued

2. Polymers (For a definition of polymer, see the Instructions Manual.) | Confidential

a. Indicate the number-average weight of the lowest molecular weight composition of the polymer you intend to manufacture. Indicate maximum weight percent of low molecular weight species (not including residual monomers, reactants, or solvents) below 500 and below 1,000 absolute molecular weight of that composition. ☐

Describe the methods of measurement or the basis for your estimates:

GPC ☐ | **Other** (Specify Below) ☐

Specify Other:

(i) lowest number average molecular weight:	(ii) maximum weight % below 500 molecular weight:	(iii) maximum weight % below 1000 molecular weight:

Enter Attachment filename for Part I, Section B, 2. a. ☐

b. You must make separate confidentiality claims for monomer or other reactant identity, composition information, and residual information. Mark (X) the "Confidential" box next to any item you claim as confidential

(1) - Provide the specific chemical name and CAS Registry Number (if a number exists) of each monomer or other reactant used in the manufacture of the polymer.
(2) - Mark (X) this column if entry in column (1) is confidential.
(3) - Indicate the typical weight percent of each monomer or other reactant in the polymer.
(4) - Choose "yes" from drop down menu if you want a monomer or other reactant used at two weight percent or less to be listed as part of the polymer description on the TSCA Chemical Substance Inventory.
(5) - Mark (X) this column if entries in columns (3) and (4) are confidential.
(6) - Indicate the maximum weight percent of each monomer or other reactant that may be present as a residual in the polymer as manufactured for commercial purposes.
(7) - Mark (X) this column if entry in column (6) is confidential.

Monomer or other reactant specific chemical name (**1**)	CBI (**2**)	Typical composition (**3**)	Include in identity (**4**)	CBI (**5**)	Max residual (**6**)	CBI (**7**)
CAS Registry Number (**1**)						
CAS Registry Number (**1**)						
CAS Registry Number (**1**)						
CAS Registry Number (**1**)						
CAS Registry Number (**1**)						

Mark (X) this box if the data continues on the next page. ☐

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c. Please identify which method you used to develop or obtain the specified chemical identity information reported in this notice (check one).				CBI
Method 1 (CAS Inventory Expert Service - a copy of the identification report obtained from CAS Inventory Expert Service must be submitted as an attachment to this notice) ☐	IES Order Number		**Method 2** (other source) ☐	
Enter Attachment filename for Part I, Section B, 2. c.				☐

d. The currently correct Chemical Abstracts (CA) name for the polymer that is consistent with TSCA Inventory listings for similar polymers.	☐

CAS Registry Number (if a number already exists for the substance)		

e. Provide a correct representative or partial chemical structure diagram, as complete as can be known, if one can be reasonably ascertained.	☐

Enter Attachment filename for Part I, Section B, 2. e.		☐

Part I -- GENERAL INFORMATION -- Continued

Section B -- CHEMICAL IDENTITY INFORMATION -- Continued

3. Impurities
   (a) - Identify each impurity that may be reasonably anticipated to be present in the chemical substance as manufactured for commercial purpose. Provide the CAS Registry Number if available. If there are unidentified impurities, enter "unidentified."
   (b) - Estimate the maximum weight % of each impurity. If there are unidentified impurities, estimate their total weight %.

Impurity (a)	CAS Registry Number (a)	Maximum Percent % (b)	Confi-dential
Triphenylphosphate	115-86-6	0.5	

Mark (X) this box if the data continues on the next page. ☐

Enter Attachment filename for Part I, Section B, 3. ☐

4. Synonyms - Enter any chemical synonyms for the new chemical identified in subsection 1 or 2.

Phenol,biphenol-polyphosphate

☐

Enter Attachment filename for Part I, Section B, 4. ☐

5. Trade identification - List trade names for the new chemical substance identified in subsection 1 or 2.

SONGFLAME TP 100

☐

Enter Attachment filename for Part I, Section B, 5. ☐

6. Generic chemical name - If you claim chemical identify as confidential, you must provide a generic name for your substance that reveals the specific chemical identity of the new chemical substance to the maximum extent possible. Refer to the TSCA Chemical Substance Inventory, 1985 Edition, Appendix B for guidance on developing generic names.

Oligomeric aromatic phosphate

Enter Attachment filename for Part I, Section B, 6.

7. Byproducts - Describe any byproducts resulting from the manufacture, processing, use, or disposal of the new chemical substance. Provide the CAS Registry Number if available.

Byproduct (1)	CAS Registry Number (2)	Confi-dential

Mark (X) this box if the data continues on the next page. ☐

Part I -- GENERAL INFORMATION -- Continued

Section C -- PRODUCTION, IMPORT, AND USE INFORMATION:

The information on this page refers to consolidated chemical number(s): ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

Mark (X) the "Confidential" box next to any item you claim as confidential.

1. Production volume -- Estimate the **maximum** production volume during the first 12 months of production. Also estimate the maximum production volume for any consecutive 12-month period during the first three years of production. Estimates should be on 100% new chemical substance basis. For a Low Volume Exemption application, if you choose to have your notice reviewed at a lower production volume than 10,000 kg/yr, specify the volume and mark (x) in the binding box. If granted, you are bound to this volume.

Maximum first 12-month production (kg/yr) (100% new chemical substance basis)	Maximum 12-month production (kg/yr) (100% new chemical substance basis)	Confidential	Binding Option Mark (X)
10000	10000	☐	☐

Enter Attachment filename for Part I, Section C, 1.		CBI ☐

2. Use Information -- You must make separate confidentiality claims for the description of the category of use, the percent of production volume devoted to each category, the formulation of the new substance, and other use information. Mark (X) the "Confidential" Box next to any item you claim as confidential.

a. (1) --Describe each intended category of use of the new chemical substance by function and application.
(2) --Mark (X) this column if entry column (1) is confidential business information (CBI).
(3) --Indicate your willingness to have the information provided in column (1) binding.
(4) --Estimate the percent of total production for the first three years devoted to each category of use.
(5) --Mark (X) this column if entry in column (4) is confidential business information (CBI).
(6) --Estimate the percent of the new substance as formulated in mixtures, suspensions, emulsions, solutions, or gels as manufactured for commercial purposes at sites under your control associated with each category of use.
(7) --Mark (X) this column if entry in column (6) is confidential business information (CBI).
(8) --Indicate % of product volume expected for the listed "use" sectors. Mark more than one box if appropriate. Mark (X) to indicate your willingness to have the use type provided in (8) binding.
(9) --Mark (X) this column if entry(ies) in column (8) is (are) confidential business information (CBI).

Category of use (**1**) (by function and application i.e. a dispersive dye for finishing polyester fibers)	CBI (**2**)	Binding Option Mark (X) (**3**)	Production % (**4**)	CBI (**5**)	% in Formulation (**6**)	CBI (**7**)	% of substance expected per use (**8**)					CBI (**9**)
							Site-limited	Consumer*	Industrial	Commercial	Binding Option	
Flame retardant for PC and PCABS			100		15		0	0	100	0		

* If you have identified a "consumer" use, please provide on a continuation sheet a detailed description of the use(s) of this chemical substance in consumer products. In addition include estimates of the concentration of the new chemical substance as expected in consumer products and describe the chemical reactions by which this substance loses its identity in the consumer product.

Mark (X) this box if the data continues on the next page. ☐

b. Generic use description — If you claim any category of use description in subsection 2a as confidential, enter a generic description of that category. Read the Instruction Manual for examples of generic use descriptions.

Songflame TP100 is a non-halogenated polyphosphonate flame retardant that addresses the need to replace the current commenrcial bromine-containing flame retardants that are being phased out due to environmental regulation. Flame retardants are required to meet fire safety standards in order to reduce flammability of combustible materials.

Enter Attachment filename for Part I, Section C, 2. b.		CBI ☐

3. Hazard Information -- Include in the notice a copy of reasonable facsimile of any hazard warning statement, label, material safety data sheet, or other information which will be provided to any person who is reasonably likely to be exposed to this substance regarding protective equipment or practices for the safe handing, transport, use, or disposal of the new substance. List in part III hazard information you include.

Mark (X) this box if you attach hazard information.	☒	Binding Option Mark (X) ☐

Part II-- HUMAN EXPOSURE AND ENVIRONMENTAL RELEASE

Section A -- INDUSTRIAL SITES CONTROLLED BY THE SUBMITTER

Mark (X) the "Confidential" box next to any item you claim as confidential

The information on pages 8 and 8a refer to consolidated chemical number(s): ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

Complete section A for each type of manufacture, processing, or use operation involving the new chemical substance at industrial sites you control. Importers do not have to complete this section for operations outside the U.S.; however, you may still have reporting requirements if there are further industrial processing or use operations after import. You must describe these operations. See instructions manual

1. Operation description
   a. Identity -- Enter the identity of the site at which the operation will occur.

Confi-dential

Name			
Site address (number and street)			
City		County	
State		ZIP code	

☐

If the same operation will occur at more than one site, enter the number of sites. Identify the additional sites on a continuation sheet, and if any of the sites have significantly different production rates or operations, include all the information requested in this section for those sites as attachments. →

☐

Mark (X) this box if the data continues on the next page. ☐

b. Type -- Mark (X) Manufacturing ☐ Processing ☐ Use ☐

☐

c. Amount and Duration -- Complete 1 or 2 as appropriate

Confi-dential

1. Batch	Maximum kg/batch (100% new chemical substance)	Hours/batch	Batches/year	☐
2. Continuous	Maximum kg/day (100% new chemical substance)	Hours/day	Days/year	☐

d. Process description

Mark (X) to indicate your willingness to have your process description binding. → ☐

(1) Diagram the major unit operation steps and chemical conversions. Include interim storage and transport containers (specify- e.g. 5 gallon pails, 55 gallon drum, rail car, tank truck, etc.).
(2) Provide the identity, the approximate weight (by kg/day or kg/batch on a 100% new chemical substance basis), and entry point of all starting materials and feedstocks (including reactants, solvents, catalysts, etc.), and of all products, recycle streams, and wastes. Include cleaning chemicals (note frequency if not used daily or per batch.).
(3) Identify by number the points of release, including small or intermittent releases, to the environment of the new chemical substance. If releasing to two media at the same step, assign a second release number for the second medium.

☐

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Diagram of the major unit operation steps.	Confidential ☐

Enter Attachment filename for Part II, Section A, 1. d.	☐

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Part II-- HUMAN EXPOSURE AND ENVIRONMENTAL RELEASE -- Continued

Section A -- INDUSTRIAL SITES CONTROLLED BY THE SUBMITTER -- Continued

The information on pages 9 and 9a refer to consolidated chemical number(s): ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

2. Occupational Exposure -- You must make separate confidentiality claims for the description of worker activity, physical form of the new chemical substance, number of workers exposed, and duration of activity. Mark (X) the "Confidential" box next to any item you claim as confidential.

(1) -- Describe the activities (i.e. bag dumping, tote filling, unloading drums, sampling, cleaning, etc.) in which workers may be exposed to the substance.
(2) -- Mark (X) this column if entry in column (1) is confidential business information (CBI).
(3) -- Describe any protective equipment and engineering controls used to protect workers.
(4) and (6) -- Indicate your willingness to have the information provided in column (3) or (5) binding.
(5) -- Indicate the physical form(s) of the new chemical substance (e.g., solid: crystal, granule, powder, or dust) and % new chemical substance (if part of a mixture) at the time of exposure.
(7) -- Mark (X) this column if entries in columns (3) and (5) are confidential business information (CBI).
(8) -- Estimate the maximum number of workers involved in each activity for all sites combined.
(9) -- Mark (X) this column if entry in column (8) is confidential business information (CBI).
(10) and (11) -- Estimate the maximum duration of the activity for any worker in hours per day and days per year.
(12) -- Mark (X) this column if entries in columns (10) and (11) are confidential business information (CBI).

Worker activity (i.e., bag dumping, filling drums) (1)	CBI (2)	Protective Equipment/ Engineering Controls (3)	Binding Option Mark (X) (4)	Physical form(s) & % new substance (5)	Binding Option Mark (X) (6)	CBI (7)	# of Workers Exposed (8)	CBI (9)	Maximum Duration		CBI (12)
									Hrs/Day (10)	Days/Yr (11)	

Mark (X) this box if the data continues on the next page. ☐

Enter Attachment filename for Part II, Section A on the bottom of page 9a. ☐

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3. Environmental Release and Disposal -- You must make separate confidentiality claims for the release number and the amount of the new chemical substance released and other release and disposal information. Mark (X) the "Confidential" box next to each item you claim as confidential.

(1) -- Enter the number of each release point identified in the process description, part II, section A, subsection 1d(3).
(2) -- Estimate the amount of the new substance released (a) directly to the environment or (b) into control technology (in kg/day or kg/batch).
(3) -- Mark (X) this column if entries in columns (1) and (2) are confidential business information (CBI).
(4) -- Identify the media (stack air, fugitive air (optional-see Instruction Manual), surface water, on-site or off-site land or incineration, POTW, or other (specify)) to which the new substance will be released from that release point.
(5) -- a. Describe control technology, if any, and control efficiency that will be used to limit the release of the new substance to the environment. For releases disposed of on land, characterize the disposal method and state whether it is approved for disposal of RCRA hazardous waste. On a continuation sheet, for each site describe any additional disposal methods that will be used and whether the waste is subject to secondary or tertiary on-site treatment. b. Estimate the amount released to the environment after control technology (in kg/day).
(6) -- Mark (X) this column if entries in columns (4) and (5) are confidential business information (CBI).
(7) -- Identify the destination(s) of releases to water. Please supply NPDES (National Pollutant Discharge Elimination System) numbers for direct discharges or NPDES numbers of the POTW (Publicly Owned Treatment Works). Mark (X) if the POTW name or NPDES # is confidential business information (CBI).

Release Number	Amount of New Substance Released		CBI	Medium of release e.g. Stack air	Control technology and efficiency (you may wish to optionally attach efficiency data)			CBI
(1)	(2a)	(2b)	(3)	(4)	(5a)	Binding Mark (X)	(5b)	(6)
Mark (X) this box if the data continues on the next page.							☐	

(7) Mark (X) the destination(s) of releases to water.		NPDES#	CBI
☐ POTW--provide name(s)			☐
☐ Navigable waterway- - provide name(s)			☐
☐ Other--Specify			☐
Enter Attachment filename for Part II, Section A.			☐

Part II-- HUMAN EXPOSURE AND ENVIRONMENTAL RELEASE – Continued

Section B -- INDUSTRIAL SITES CONTROLLED BY OTHERS

The information on pages 10 and 10a refer to consolidated chemical number(s): ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

Complete section B for typical processing or use operations involving the new chemical substance at sites you do not control. Importers do not have to complete this section for operations outside the U.S.; however, you must report any processing or use activities after import. See the Instructions Manual. *Complete a separate section B for each type of processing, or use operation involving the new chemical substance*. If the same operation is performed at more than one site describe the typical operation common to these sites. Identify additional sites on a continuation sheet.

1(a). Operation Description -- To claim information in this section as confidential, bracket (e.g. {}) the specific information that you claim as confidential.

(1) -- Diagram the major unit operation steps and chemical conversions, including interim storage and transport containers (specify - e.g. 5 gallon pails, 55 gallon drums, rail cars, tank trucks, etc). On the diagram, identify by letter and briefly describe each worker activity.

(2) -- Either in the diagram or in the text field 1(b) below, provide the identity, the approximate weight (by kg/day or kg/batch, on an 100% new chemical substance basis), and entry point of all feedstocks (including reactants, solvents and catalysts, etc) and all products, recycle streams, and wastes. Include cleaning chemicals (note frequency if not used daily or per batch).

(3) -- Either in the diagram or in the text field 1(b) below, identify by number the points of release, including small or intermittent releases, to the environment of the new chemical substance.

(4) -- Please enter the # of sites (remember to identify the locations of these sites on a continuation sheet):

	Number of Sites		Confidential ☒

1(b). (Optional) This space is for a text description to clarify the diagram above. Confidential ☐

Enter Attachment filename for Part II, Section B on the bottom of page 10a.		☐

Continuation Sheet

ID	P10SB1(a)(4)1	Field	Part II, Section B, 1(a)(4). Operation Site Locations

XXX

PMN Page 10a

2. Worker Exposure/Environmental Release

(1) -- From the diagram above, provide the letter for each worker activity. Complete 2-8 for each worker activity described.
(2) -- Estimate the number of workers exposed for all sites combined.
(4) -- Estimate the typical duration of exposure per worker in (a) hours per day and (b) days per year.
(6) -- Describe physical form of exposure and % new chemical substance (if in mixture), and any protective equipment and engineering controls, if any, used to protect workers.
(7) -- Estimate the percent of the new substance as formulated when packaged or used as a final product.
(9) -- From the process diagram above, enter the number of each release point. Complete 9-13 for each release point identified.
(10) -- Estimate the amount of the new substance released (a) directly to the environment or (b) into control technology to the environment (in kg/day or kg/batch).
(12) -- Describe media of release i.e. stack air, fugitive air (optional-see Instructions Manual), surface water, on-site or off-site land or incineration, POTW, or other (specify) and control technology, if any, that will be used to limit the release of the new substance to the environment.
(14) -- Identify byproducts which may result from the operation.
(3), (5), (8), (11), (13) and (15) -- Mark (X) this column if any of the proceeding entries are confidential business information (CBI).

Letter of Activity	# of Workers Exposed	CBI	Duration of Exposure		CBI	Protective Equip./Engineering Controls/Physical Form	% new substance	% in Formulation	CBI
(1)	(2)	(3)	(4a)	(4b)	(5)	(6)	(6)	(7)	(8)

Release Number	Amount of New Substance Released		CBI	Media of Release & Control Technology	CBI
(9)	(10a)	(10b)	(11)	(12)	(13)

Mark (X) this box if the data continues on the next page. ☐

(14) Byproducts:	TP-100 is thermally and chemically very stable product so there is no chance to make byproducts during operation.	**(15) CBI**	☐
Enter Attachment filename for Part II, Section B.			☐

OPTIONAL POLLUTION PREVENTION INFORMATION

To claim information in the following section as confidential, bracket (e.g. {}) the specific information that you claim as confidential.

In this section you may provide information not reported elsewhere in this form regarding your efforts to reduce or minimize potential risks associated with activities surrounding manufacturing, processing, use and disposal of the PMN substance. Please include new information pertinent to pollution prevention, including source reduction, recycling activities and safer processes or products available due to the new chemical substance. Source reduction includes the reduction in the amount or toxicity of chemical wastes by technological modification, process and procedure modification, product reformulation, and/or raw materials substitution. Recycling refers to the reclamation of useful chemical components from wastes that would otherwise be treated or released as air emissions or water discharges, or land disposal. Quantitative or qualitative descriptions of pollution prevention, source reduction and recycling should emphasize potential risk reduction in addition to compliance with existing regulatory requirements. The EPA is interested in the information to assess overall net reductions in toxicity or environmental releases and exposures, not the shifting of risks to other media (e.g., air to water) or nonenvironmental areas (e.g., occupational or consumer exposure). To the extent known, information about the technology being replaced will assist EPA in its relative risk determination. In addition, information on the relative cost or performance characteristics of the PMN substance to potential alternatives may be provided.

Describe the expected net benefits, such as

(1) an overall reduction in risk to human health or the environment;
(2) a reduction in the generation of waste materials through recycling, source reduction or other means;
(3) a reduction in the use of hazardous starting materials, reagents, or feedstocks;
(4) a reduction in potential toxicity, human exposure and/or environmental release; or
(5) the extent to which the new chemical substance may be a substitute for an existing substance that poses a greater overall risk to human health or the environment.

Information provided in this section will be taken into consideration during the review of this substance. See PMN Instructions Manual and Pollution Prevention Guidance manual for guidance and examples.

Enter Attachment filename for Pollution Prevention Page 11.		☐

Part III -- LIST OF ATTACHMENTS

Attach continuation sheets for sections of the form, test data and other data (including physical/chemical properties and structure/activity information), and optional information after this page. Clearly identify the attachment and the section of the form to which it relates, if appropriate. Number consecutively the pages of any paper attachments. In the Number of Pages column below, enter the inclusive page numbers of each attachment for paper submissions or enter the total number of pages for each attachment for electronic submissions. Electronic attachments can be identified by filename.
Mark (X) the "Confidential" box next to any attachment name or filename you claim as confidential. Read the Instructions Manual for guidance on how to claim any information in an attachment as confidential. You must include with the sanitized copy of the notice form a sanitized version of any attachment in which you claim information as confidential.

#	Attachment Name	Attachment Filename	Number of Pages	Associated PMN Section Number	CBI
001	Determination of general physico-chemical properties	1750-001.pdf	60	See continuation page. id: <P12001>	
002	Determination of Hazardous physico-chemical Properties	1750-002.pdf	30	See continuation page. id: <P12002>	
003	Chemical structure - TP-100	structure - Songflame TP-100.jpg	0	Pt.I, Sec.B, 1e.	
004	Acute dermal toxicity (Limit test) in the rat	1750-004.pdf	16		
005	Acute dermal irritation in the rabbit	1750-005.pdf	13		
006	Acute eye irritation in the rabbit	1750-006.pdf	16		
007	Local lymph node assay in the mouse	1750-007.pdf	19		
008	Twenty-eight day repeated dose oral (gavage) toxicity study in the rat	1750-008.pdf	331		
009	Acute toxicity to rainbow trout	1750-011.pdf	40		
010	Acute toxicity to Daphnia magna	1750-012.pdf	30		
011	Algal inhibition test	1750-013.pdf	55		
012	Assessment of the inhibitory effect on the	1750-014.pdf	27		
013	Induction of chromosome aberration in cultured chinese hamster lung (CHL) cells	S496.pdf	29		
014	Reverse mutation in four histidine-requiring strains of salmonella typhimurium and one	S497.pdf	23		
015	Chemical-Abstract Service - processing result	14 2	3	Pt.I, Sec.B, 1c.	
016	material safety data sheet	SDS_SONGFLAME_TP-100_(USA)_v6.pdf	8		
017	Microbial degradation	1.Microbial degradation.pdf	25		
018	Acute toxicity of Earthworm	2.Acute toxicity of Earthworm.pdf	13		
019	Acute toxicity of rats	3.Acute toxicity of Rats.pdf	20		
020	Bioconcentration study	4.Bioconcentration study.pdf	39		
021	Biodegradation study	5.Biodegradation study.pdf	25		

Mark (X) this box if the data continues on the next page. [X]

Part III -- LIST OF ATTACHMENTS

Attach continuation sheets for sections of the form, test data and other data (including physical/chemical properties and structure/activity information), and optional information after this page. Clearly identify the attachment and the section of the form to which it relates, if appropriate. Number consecutively the pages of any paper attachments. In the Number of Pages column below, enter the inclusive page numbers of each attachment for paper submissions or enter the total number of pages for each attachment for electronic submissions. Electronic attachments can be identified by filename.
Mark (X) the "Confidential" box next to any attachment name or filename you claim as confidential. Read the Instructions Manual for guidance on how to claim any information in an attachment as confidential. You must include with the sanitized copy of the notice form a sanitized version of any attachment in which you claim information as confidential.

#	Attachment Name	Attachment Filename	Number of Pages	Associated PMN Section Number	CBI
022	Induction of Chromosome-Aberration	6.Induction of Chromosome Aberration.pdf	30		
023	Reverse Mutation Test	7.Reverse Mutation Test.pdf	23		
024	Diagramm of reaction - steps involved - sanitized	Songwon Songflame TP100 - Reactiondiagramm.-sanitized.jpg	0	Pt.I, Sec.B, 1e(2).	

Mark (X) this box if the data continues on the next page. ☐

Continuation Sheet

ID	P12001	Field	List of Attachments, Associated PMN Section No., ID: 001

Worksheet: Density | Worksheet: Solubility In Water | Worksheet: Melting temp | Worksheet: Boiling / sublimation temp | Worksheet: Other Property (Partition Coefficient - Component 1) | Worksheet: Other Property (Partition coefficient - component 2-4)

Continuation Sheet

ID	P12002	Field	List of Attachments, Associated PMN Section No., ID: 002

Worksheet: Vapor Pressure | Worksheet: Flammability | Worksheet: Explodability | Worksheet: Other Property (Auto-ignition temperature) | Worksheet: Other Property (Relative self-ignition) | Worksheet: Other Property (oxidising properties)

PMN Page 13

PHYSICAL AND CHEMICAL PROPERTIES WORKSHEET

The information on this page refers to chemical number(s): ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

To assist EPA's review of physical and chemical properties data, please complete the following worksheet for data you provide and include it in the notice. Identify the property measured, the value of the property, the units in which the property is measured (as necessary), and whether or not the property is claimed as confidential. Give the attachment number (found on page 12) in column (b). The physical state of the neat substance should be provided. These measured properties should be for the neat (100% pure) chemical substance. Properties that are measured for mixtures or formulations should be so noted (% PMN substance in __). You are not required to submit this worksheet; however, EPA strongly recommends that you do so, as it will simplify the review and ensure that confidential information is properly protected. You should submit this worksheet as a supplement to your submission of test data. This worksheet is not a substitute for submission of test data.

Property (a)		Unit	Mark X if Provided	Attachment Number (b)	Value (c)			Measured or Estimate (M or E)	CBI Mark (X) (d)
					(solid)	(liquid)	(gas)		
Physical state of neat substance			☐		☒	☐	☐	Measured	
Vapor Pressure @ Temperature	25	°C	☒	002	<4.81E-6		Torr	Measured	
Density/relative density			☒	001	1.34		g/cm3	Measured	
Solubility			☐				g/L		
@ Temperature		°C							
Solvent									
Solubility in Water @ Temperature	20	°C	☒	001	< 2.21E-5		g/L	Measured	
Melting Temperature			☒	001	62-84		°C	Measured	
Boiling / Sublimation temperature @	759	Torr	☒	001	400		°C	Measured	
Spectra			☐						
Dissociation constant			☐						
Octanol / water partition coefficient			☐		81.1 % PMN subst: 5.86			Measured	
Henry's Law constant			☐						
Volatilization from water			☐						
Volatilization from soil			☐						
pH@ concentration			☐						
Flammability			☒	002	not highly flammable			Measured	
Explodability			☒	002	predicted negative			Estimate	
Adsorption / Coefficient			☐		Koc > 4.27E5			Measured	
Particle Size Distribution			☐		2.46 % particles < 100 µM			Measured	
Other – Specify	Auto-ignition temperature		☒	002	None below 400°C			Measured	

Continuation Sheet

ID		Field	

PHYSICAL AND CHEMICAL PROPERTIES WORKSHEET

Property (a)		Mark X if Provided	Attachment Number (b)	Value (c)	Measured or Estimate (M or E)	CBI Mark (X) (d)
Other – Specify	Relative self-ignition	X	002	none below melting temperature	Measured	
Other – Specify	oxidising properties	X	002	predicted negative	Estimate	
Other – Specify	Partition Coefficient - Component 1	X	001	7.29E5 Pow / 5.86 Log10Pow	Measured	
Other – Specify	Partition coefficient - component 2-4	X	001	>1.59E6 Pow / >6.2 Low10Pow	Measured	
Other – Specify						
Other – Specify						
Other – Specify						
Other – Specify						
Other – Specify						
Other – Specify						
Other – Specify						
Other – Specify						
Other – Specify						
Other – Specify						
Other – Specify						
Other – Specify						

ATTACHMENT HEADER SHEET

Attachment Number 001

Attachment Name

Determination of general physico-chemical properties

Associated PMN Section Number

Worksheet: Density | Worksheet: Solubility In Water | Worksheet: Melting temp | Worksheet: Boiling / sublimation temp | Worksheet: Other Property (Partition Coefficient - Component 1) | Worksheet: Other Property (Partition coefficient - component 2-4)

Does not contain CBI

Report Number

CASX110721634289920

ATTACHMENT HEADER SHEET

Attachment Number 002

Attachment Name

Determination of Hazardous physico-chemical Properties

Associated PMN Section Number

Worksheet: Vapor Pressure | Worksheet: Flammability | Worksheet: Explodability | Worksheet: Other Property (Auto-ignition temperature) | Worksheet: Other Property (Relative self-ignition) | Worksheet: Other Property (oxidising properties)

Does not contain CBI

Report Number

CASX110721634289920

ATTACHMENT HEADER SHEET

Attachment Number 003

Attachment Name

Chemical structure - TP-100

Associated PMN Section Number

Pt.I, Sec.B, 1e.

Does not contain CBI

Report Number

CASX110721634289920

ATTACHMENT HEADER SHEET

Attachment Number 004

Attachment Name

Acute dermal toxicity (Limit test) in the rat

Associated PMN Section Number

N/A

Does not contain CBI

Report Number

CASX110721634289920

ATTACHMENT HEADER SHEET

Attachment Number 005

Attachment Name

Acute dermal irritation in the rabbit

Associated PMN Section Number

N/A

Does not contain CBI

Report Number

CASX110721634289920

ATTACHMENT HEADER SHEET

Attachment Number 006

Attachment Name

Acute eye irritation in the rabbit

Associated PMN Section Number

N/A

Does not contain CBI

Report Number

CASX110721634289920

ATTACHMENT HEADER SHEET

Attachment Number 007

Attachment Name

Local lymph node assay in the mouse

Associated PMN Section Number

N/A

Does not contain CBI

Report Number

CASX110721634289920

ATTACHMENT HEADER SHEET

Attachment Number 008

Attachment Name

Twenty-eight day repeated dose oral (gavage) toxicity study in the rat

Associated PMN Section Number

N/A

Does not contain CBI

Report Number

CASX110721634289920

ATTACHMENT HEADER SHEET

Attachment Number 009

Attachment Name

Acute toxicity to rainbow trout

Associated PMN Section Number

N/A

Does not contain CBI

Report Number

CASX110721634289920

ATTACHMENT HEADER SHEET

Attachment Number 010

Attachment Name

Acute toxicity to Daphnia magna

Associated PMN Section Number

N/A

Does not contain CBI

Report Number

CASX110721634289920

ATTACHMENT HEADER SHEET

Attachment Number 011

Attachment Name

Algal inhibition test

Associated PMN Section Number

N/A

Does not contain CBI

Report Number

CASX110721634289920

ATTACHMENT HEADER SHEET

Attachment Number 012

Attachment Name

Assessment of the inhibitory effect on the respiration of activated sewage sludge

Associated PMN Section Number

N/A

Does not contain CBI

Report Number

CASX110721634289920

ATTACHMENT HEADER SHEET

Attachment Number 013

Attachment Name

Induction of chromosome aberration in cultured chinese hamster lung (CHL) cells

Associated PMN Section Number

N/A

Does not contain CBI

Report Number

CASX110721634289920

ATTACHMENT HEADER SHEET

Attachment Number 014

Attachment Name

Reverse mutation in four histidine-requiring strains of salmonella typhimurium and one tryptophan-requiring strain of echerischia coli

Associated PMN Section Number

N/A

Does not contain CBI

Report Number

CASX110721634289920

ATTACHMENT HEADER SHEET

Attachment Number 015

Attachment Name

Chemical-Abstract Service - processing result

Associated PMN Section Number

Pt.I, Sec.B, 1c.

Does not contain CBI

Report Number

CASX110721634289920

ATTACHMENT HEADER SHEET

Attachment Number 016

Attachment Name

material safety data sheet

Associated PMN Section Number

N/A

Does not contain CBI

Report Number

CASX110721634289920

ATTACHMENT HEADER SHEET

Attachment Number 017

Attachment Name

Microbial degradation

Associated PMN Section Number

N/A

Does not contain CBI

Report Number

CASX110721634289920

ATTACHMENT HEADER SHEET

Attachment Number 018

Attachment Name

Acute toxicity of Earthworm

Associated PMN Section Number

N/A

Does not contain CBI

Report Number

CASX110721634289920

ATTACHMENT HEADER SHEET

Attachment Number 019

Attachment Name

Acute toxicity of rats

Associated PMN Section Number

N/A

Does not contain CBI

Report Number

CASX110721634289920

ATTACHMENT HEADER SHEET

Attachment Number 020

Attachment Name

Bioconcentration study

Associated PMN Section Number

N/A

Does not contain CBI

Report Number

CASX110721634289920

ATTACHMENT HEADER SHEET

Attachment Number 021

Attachment Name

Biodegradation study

Associated PMN Section Number

N/A

Does not contain CBI

Report Number

CASX110721634289920

ATTACHMENT HEADER SHEET

Attachment Number 022

Attachment Name

Induction of Chromosome-Aberration

Associated PMN Section Number

N/A

Does not contain CBI

Report Number

CASX110721634289920

ATTACHMENT HEADER SHEET

Attachment Number 023

Attachment Name

Reverse Mutation Test

Associated PMN Section Number

N/A

Does not contain CBI

Report Number

CASX110721634289920

ATTACHMENT HEADER SHEET

Attachment Number 024

Attachment Name

Diagramm of reaction - steps involved - sanitized

Associated PMN Section Number

Pt.I, Sec.B, 1e(2).

Does not contain CBI

Report Number

CASX110721634289920

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

[redacted]

CHEMICAL SAFETY
AND POLLUTION PREVENTION

Mr. Jim McGinley, President
Songwon International - Americas, Inc.
211 East Parkwood Avenue, Suite 101
Friendswood TX 77546

Re: LVE L-11-0[redacted]

SEP 0 8 2011

Dear Mr. McGinley:

This letter responds to the above-referenced Low Volume Exemption (LVE) notice, received by the Environmental Protection Agency (EPA) on 8/16/2011. In accordance with 40 CFR 723.50(h)(1), this letter confirms the notification provided to you by telephone message and by email on 9/1/11, that this substance is ineligible for the low volume exemption.

EPA cannot conclude, as required for exemption eligibility per TSCA §5(h)(4), that the manufacture, processing, use and disposal of this LVE substance will not present any unreasonable risk of injury to human health or the environment. Pursuant to 40 CFR 723.50(d), this chemical substance cannot be manufactured under the low volume exemption because, under anticipated conditions and activities, the LVE substance and/or its environmental transformation products may cause significant environmental effects; the Agency had a high concern for releases to water of phosphate esters, based on submitted test data. Risks to the environment were high due to exceedances of the Concentration of Concern (COC), which was set at 1 part per billion both for acute and chronic exposures. During use operations the COC of 1 ppb was predicted to be exceeded more than 40 days/yr.

Since EPA is concerned that this LVE substance may cause significant environmental effects, EPA cannot conclude that this LVE substance will not present an unreasonable risk of injury to human health or the environment. Therefore, this chemical substance is ineligible for the Low Volume Exemption under 40 CFR 723.50 and you may not commence commercial manufacture of this substance without a premanufacture notice under section 5(a) of TSCA.

If you have any questions or comments, please contact Dave Schutz, the Program Manager for this LVE, at (202) 564-9262.

Sincerely,

Greg Schweer, Chief
New Chemicals Management Branch
Chemical Control Division (7405 M)

Focus Report

New Chemicals Program

PMN Number: **L-11-0347**

Focus Date:	08/31/2011 11:00:00 PM	Report Status:	Completed
Consolidated Set:			
Focus Chair:	Brian Lee	Contractor:	Bryan Amagai

I. Notice Information

Submitter:	Songwon International - Americas, Inc.	CAS Number:	1095608-65-3
Chemical Name:	Phosphoric trichloride, reaction products with [1,1'-biphenyl]-4,4'-diol and phenol		
Use:	Flame retardant for polycarbonate (PC) and polycarbonate/acrylonitrile/butadiene/styrene (PCABS) plastics. No references found. All analogs are fire retardants.		
Other Uses:	None found.		
PV-Max:	10,000 Kg/yr	Binding Option:	No
Manufacture:		Import:	X

II. SAT Results

(1) **Health Rating:** 1-2 **Eco Rating:** 3 **Comments:** ;

Occupational: 2-3B **Non-Occupational:** **Environmental:** 2

(1) **PBT:** 2 1 1 **Comments:** PMN

III. OTHER FACTORS

Categories:

Health Chemical Category: Ecotox Category: phosphate esters

Related Cases/Regulatory History:

Health related Cases: [redacted]

Ecotox Related Cases: Analogs: [redacted]

Regulatory History: [redacted] - FOCUS DROP
[redacted] - FOCUS DROP
[redacted] - DR DISPO DROP
[redacted] - REG 5E CONS./TESTING TRIGGER EXPOSURE-BASED
[redacted] - FOCUS DROP
[redacted] - CCD DISP. DROP BASED ON VOL.TESTNG-EXPOSURE BASED

MSDS/Label Information:

MSDS:	Yes	Label:	No
General Equipment:	impermeable gloves (butyl rubber nitrile, or PVC), safety glasses/ protective work clothing/		
Respirator:	not necessary if room is well ventilated/ in case of brief exposure use respiratory filter device/ in case of intensive or longer exposure, use respiratory protective device that is independend of circulating air		
Health Effects:	no irritating effects on skin and eyes/ no sensitizing effects known/ very toxic to aquatic life with long lasting effects		
TLV/PEL (PMN or raw material):	- Total Dust - OSHA PEL		

Exposure Based Information:

Exposure Based Review:	N	Exposure Based Review (Health):	
Exposure Based Review (Eco):	N	Exposure Based (Occupational):	No
Exposure Based Review (Non Occupatuional):		Exposure Based (Environmental):	

IV. Summary of SAT Assessment

Fate:

Fate Summary: L-11-0347
FATE:
Solid with MP = 62-84 C (M)
log Kow = 5.86 (M, typical);
S < 0.22 mg/L at 25 C (M)
VP < 5.0E-6 torr at 25 C (M)
BP > 400 C (M)
POTW removal (%) = 90 via sorption; OECD 305(Bioconcentration): BCF 0.63-770/60d; OECD 301C(MITI): 3%/28d NRB; OECD 301C(MITI): 3.6%/28d NRB;
Time for complete ultimate aerobic biodeg ≥ mo
Sorption to soils/sediments = v.strong
PBT Potential: P2B1
*CEB FATE: Migration to ground water = negl

Health:

Health Summary: Absorption is nil all routes as the neat material; absorption is expected to be poor all routes if in solution (pchem). Uncertain concern for mutagenicity based on P97-0056 and neurotoxicity based on organic phosphates.

Test Data: (-) Salmonella with and without activation; (-) E. coli with and without activation; (-) for chromosome aberrations in CHL cells with activation and (+) without activation (unconfirmed); rat oral LD0 = 5000 mg/kg; rat dermal LD0 = 5000 mg/kg; mild skin irritation in rabbits; mild eye irritation in rabbits; (-) for skin sensitization in a mouse local lymph node assay up to 50% ai; rat 28-day oral NOEL = 1000 mg/kg (highest dose tested)

Ecotox:

Ecotox Values:

Fish 96-h LC50:	*(P)	> 0.020 NOEC = 0.020(M)
Daphnid 48-h LC50:	*(P)	>0.0089 NOEC = 0.0089 (M)
Green algal 96-h EC50:	*(P)	ErC50 = 0.0040 72-hour EbC50 = 0.00031 96-hour EbC50 = 0.00032 NOEC = 0.000238(M)
Fish Chronic Value:	*(P)	
Daphnid ChV:	*(P)	
Algal ChV:	*(P)	

Ecotox values comments: Predictions are based on SARs for phosphate esters; SAR chemical class = phosphate ester; MW 651 (major product); log Kow = 9.17 (EPI, major product); solid with mp = 62-84 C (M); S < 0.001 mg/L at 25 C (P); pH7; effective concentrations based on 100% active ingredients and nominal concentrations; hardness <150.0 mg/L as CaCO3; and TOC <2.0 mg/L;

This LVE came with ecotoxicity data. Below is a summary and conclusions. Attached document also describes summary and conclusions.

Ecotoxicity Study Review for
Phosphoric trichloride, reaction products with [1,1'-biphenyl]-4,4'-diol and phenol
TP-100
(CASRN 1095608-65-3)
L11-0347
Three ecotoxicity studies were submitted with the LVE L11-0347 from Songwon International - Americas, Inc.: a 96-hour acute fish toxicity test, a 48-hour acute daphnid immobilization test and a 72-hour algal test. The studies were conducted in 2003 and the substance was described as an off-white solid with MW = 650.57.Water solubility of the PMN material was measured as < 0.0221 mg/L. The studies were conducted by Safepharm Laboratories, Derbyshire, UK and were performed under GLP conditions with a certificate of analysis and a signed quality assurance statement also provided. Mean measured concentrations were determined with HPLC methods and a LOQ = 0.00052 mg/L. The studies complied with OECD guidelines 201, 202, and 203 (OECD, Section 2: Effects on Biotic Systems, Guideline for the Testing of Chemicals (2004)) and OCSPP 850.1075, 850.1010, and 850.5400 for 1) O2, pH, and temperature; 2) mean, measured test concentrations, 3) species, age, number of organisms per replicate and biomass loading rates and 4)

appropriate response in controls.

1) The 96-hour acute fish toxicity test was conducted with Rainbow trout (Oncorhynchus mykiss) under semi-static conditions. For the definitive test, a control, a solvent control and 0.020 mg/L of the test material were tested. The 0.020 mg/L of the PMN test material was dissolved in DMF (dimethylformamide; 0.1 mg/L) to prepare the stock solution. Daily renewals were made for the test concentrations. The test material was centrifuged or not centrifuged to demonstrate the total amount of test material in the system v. the total amount of dissolved sample that could be bioavailable to the organism. Fish were exposed in three replicates of 10 fish each. Observations were done at 3, 6, 24, 48, 72, and 96 hours after the start of exposure. DO = 7.9 – 9.9 mg/L, pH = 7.4 – 7.7, and temperature = 10.8 – 14.0 °C. Analysis of the test concentrations showed the test material to have mean, measured concentrations within 100 – 120 % of nominal taken from samples uncentrifuged before or after test concentration renewal. Centrifuged test samples prior to or after test material renewal showed measured values of 53 – 71 % of nominal. The test material measured concentrations in older solutions declined compared to the freshly prepared samples which was thought to be due to the adsorptive/accumulative properties of the PMN test material. No mortality was observed during the test.
96-hour LC50 > 0.020 mg/L
NOEC = 0.020 mg/L

2) The 48-hour acute toxicity test for D. magna (four replicates per test concentration/ 10 daphnids per replicate) was a static test with solvent control (DMF; 0.1 mg/L), negative control, and a nominal concentration of 0.0060 mg/L. Analysis of the test material ranged from 0.00848 to 0.00974 mg/L and no sign of loss of test material over the 48-hour period. The mean, measured value was 0.0089 and although slightly higher than the nominal test concentration, this is thought to be due to variation associated with analysis of the sample being so close to the LOQ (see above). Water quality parameters were the following: temperature = 20.9 -21°C, pH = 7.9-8.0, and DO = 8.1 – 8.4 mg/L. No immobilization was observed during the test.
48-hour EC50 > 0.0089 mg/L
NOEC = 0.0089 mg/L

3) The green algae (Pseudokirchneriella subcapitata) were exposed to the test material for 96 hours under static conditions with a solvent control (0.1 mg/L tetrahydrofuran), negative control, and 0.00038, 0.00075, 0.0015, 0.0030, and 0.0060 mg/L of the test material. The algae were exposed in 3 replicates of each test concentration under constant illumination (7000 lux) and shaking (150 rpm). The initial cell density was 1 X 104 cells/mL. Temperature was 24 °C, pH = 7.5 – 8.0. Samples of algae were removed at 0, 24, 48, 72, and 96 hours to determine biomass and growth. Some interference was observed in the controls after analytical measurements were taken. Therefore the response in the controls was corrected for in calculating the test material concentrations and thereby resulted in the range of the material concentration to be less than the LOQ to 137 % of the nominal concentrations. Inhibition of growth was determined at the 0.00038 and the 0.00075 mg/L test concentrations to be 1 and 63 %, respectively. Test results are reported as geometric means due to requirements for reporting in this manner if there is an observed decline in the test concentrations or the determined concentrations are below the LOQ of the analytical method.
96-hour ErC50 = 0.0040 mg/L (95 % C.I. = ± 0.00038 – 0.00042 mg/L) (growth rate)
72-hour EbC50 = 0.00031 mg/L (95 % C.I. = ± 0.00030– 0.00032 mg/L) (biomass)
96-hour EbC50 = 0.00032 mg/L (95 % C.I. = ± 0.00031 – 0.00033 mg/L) (biomass)
NOEC = 0.000238 mg/L

All three tests are considered valid. All three tests did not agree well with predicted ECOSAR (v. 1.1) values for each species for the chemical class phosphate esters.
The most appropriate and environmentally protective value used to determine the chronic concern concentration is the 96-hour EbC50 value for algae as 0.00032 mg/L.. This value will be divided by an assessment (uncertainty) factor of 10 to yield 0.000032 mg/L or 0.032 ìg/L or 1 ppb.
Chronic Concern Concentration = 1 ppb.

To calculate the acute concern concentration, the 96-hour EbC50 value as 0.00032 mg/L for algae is used. 0.00032 mg/L is divided by an assessment (uncertainty) factor of 4 to yield 0.00008 mg/L or 0.08 ìg/L or 1 ppb.
Acute Concern Concentration = 1 ppb.

Reviewer: S. Pollack
24th August 2011

Ecotox Factors:

Assessment Factor: 10
Concern Concentration: 1

V. Summary of Exposures/Releases

Engineering Summary: L-11-0347

Exposures/Releases	Release	Release	Release
Scenario	**Use: Flame retardant additive in thermoplastic polymers**	**Use: Flame retardant additive in thermoplastic polymers**	**Use: Flame retardant additive in thermoplastic polymers**
Sites	[redacted]	[redacted]	[redacted]
Media	**Water or Air or Incineration or Landfill**	**Water or Incineration or Landfill**	**Landfill**
Descriptor A	Output 2	Output 2	Conservative
Quantity A (kg/site/day)	1.0E+0	2.1E+0	8.0E-1
Frequency A (day/year)	48	48	250
Descriptor B			
Quantity B (kg/site/day)			
Frequency B (day/year)			
From	Unloading Solid Raw Material from Transport Containers	Cleaning Solid/ Powder Residuals from Containers Used to Transport the Raw Material	Equipment Cleaning Losses of Liquids from Multiple Vessels
Workers			
Exposure Type			

Engineering Summary: Exposures/Releases	Exposure	Exposure	
Scenario	**Use: Flame retardant additive in thermoplastic polymers**	**Use: Flame retardant additive in thermoplastic polymers**	
Sites	[redacted]	[redacted]	
Media	**Dermal**	**Inhalation**	
Descriptor A	High End	Upper Bound	
Quantity A (kg/site/day)	3.1E+3	1.5E+2	
Frequency A (day/year)	250	250	
Descriptor B			
Quantity B (kg/site/day)			
Frequency B (day/year)			
From	Unloading Solid Raw Material from Transport Containers	Unloading Solid Raw Material from Transport Containers	
Workers	48	48	
Exposure Type	Solid	Particulate	

VI. Focus Decision and Rationale

Regulatory Actions

Regulatory Decision: LVE Denial Decision Date: 08/31/2011
Type of Decision:

Rationale: L-11-0347 was denied for ecotoxicity concerns (releases to water). Human health concerns were low-moderate. Potential risks to workers were from inhalation and dermal exposure and were mitigated by appropriate PPE. Ecotoxicity concerns were high for phosphate esters based on submitted test data and risks to the environment were high due to exceedences of the chronic COC. During use operations the chronic COC of 1.00 ppb was exceeded 47/ days/yr and the acute COC of 1.00 ppb was exceeded (SWC: 292.45 ppb). This LVE was not bound and assessed at 10,000 kg/yr.

COC: Chronic – 1 ppb, Acute – 1 ppb

Summary of exposures and releases

Use
site, days/yr, workers
Inhalation: Part: 1.5E+2 mg/day
Dermal: 3.1E+3 mg/day (Solid 100%)

Releases to Water: 1.0E+0 kg/site-day over 48 days/yr
Or Air or Incineration or Landfill
Releases to Water: 2.1E+0 kg/site-day over 48 days/yr
Or Incineration or Landfill
Releases via Landfill: 8.0E-1 kg/site-day over 250 days/yr

Fate Releases to Water (90.00% Removal)
SWC: 292.45 ppb
DW: LADD: 2.86E-05 mg/kg/day, ADR: 1.34E-02 mg/kg/day
>COC (1.00 ppb) 47/48 days/yr

Fate Releases to Air:
Fugitive Air: ADR: 2.57E-02 mg/kg/day

P2 Rec Comments:

Testing:

Final Recommended:

Health:
Eco:
Fate:
Other:

SAT Report

PMN Number: **L-11-0347**
SAT Date: **8/26/2011**
Print Date: **4/15/2015**

Related cases:
Health related cases: [redacted]
Ecotox related cases: Analogs: [redacted], [redacted].

Concern levels:

Type of Concern:	Health	Eco	Comments
Level of Concern:	1-2	3	

Persistence	Bioaccum	Toxicity	Comments	
2	1	1		PMN
		Awaiting Human Health Entry		
		Awaiting Human Health Entry		
		Awaiting Human Health Entry		

Exposure Based Review:
Health:
Ecotox: No

Routes of exposure:
Health: Dermal Inhalation
Ecotox: All releases to water
Fate: ;

Keywords:
Keywords:

Summary of Assessment:

Fate:
Fate Summary: L-11-0347

FATE:
Solid with MP = 62-84 C (M)
log Kow = 5.86 (M, typical);

S < 0.22 mg/L at 25 C (M)
VP < 5.0E-6 torr at 25 C (M)
BP > 400 C (M)
POTW removal (%) = 90 via sorption; OECD 305(Bioconcentration): BCF 0.63-770/60d; OECD
301C(MITI): 3%/28d NRB; OECD 301C(MITI): 3.6%/28d NRB;
Time for complete ultimate aerobic biodeg ≥ mo
Sorption to soils/sediments = v.strong
PBT Potential: P2B1
*CEB FATE: Migration to ground water = negl

Health:

Health Summary: Absorption is nil all routes as the neat material; absorption is expected to be poor all routes if in solution (pchem). Uncertain concern for mutagenicity based on [redacted] neurotoxicity based on organic phosphates.

Test Data: (-) Salmonella with and without activation; (-) E. coli with and without activation; (-) for chromosome aberrations in CHL cells with activation and (+) without activation (unconfirmed); rat oral LD0 = 5000 mg/kg; rat dermal LD0 = 5000 mg/kg; mild skin irritation in rabbits; mild eye irritation in rabbits; (-) for skin sensitization in a mouse local lymph node assay up to 50% ai; rat 28-day oral NOEL = 1000 mg/kg (highest dose tested)

Ecotox:

Test Organism	Test Type	Test End Point	Predicted	Measured	Comments
fish	**96-h**	**LC50**	*	> 0.020 NOEC = 0.020	valid
daphnid	**48-h**	**LC50**	*	>0.0089 NOEC = 0.0089	valid
green algal	**96-h**	**EC50**	*	ErC50 = 0.0040 72-hour EbC50 = 0.00031 96-hour EbC50 = 0.00032 NOEC = 0.000238	valid
fish	**_**	**chronic value**	*		
daphnid	**_**	**chronic value**	*		
algal	**_**	**chronic value**	*		
Sewage Sludge	**3-h**	**EC50**	_		
Sewage Sludge	**_**	**Chronic Value**	_		

Ecotox Values Comments:

Factors	Values	Comments
Assessment Factor	10	
Concentration of Concern (ppb)	1	from valid test results
SARs	phosphate esters	
SAR Class	phosphate ester	
Ecotox Category		

Ecotox Factors Comments:

SAT Chair: L Keifer 564-8916

1

INITIAL REVIEW ENGINEERING REPORT [redacted]

L-11-0347
Focus Ready Draft 8/31/2011 11:00:00 PM

ENGINEER: Austin \ DDH
PV (kg/yr): 10000

Revision Notes/Assessment Overview:

SUBMITTER: Songwon International - Americas, Inc. (submitter)

USE: Flame retardant for polycarbonate (PC) and polycarbonate/acrylonitrile/butadiene/styrene (PCABS) plastics. No references found. All analogs are fire retardants.

OTHER USES: None found.

MSDS: Yes **LABEL**: No

Gen Eqpt: impermeable gloves (butyl rubber nitrile, or PVC), safety glasses/ protective work clothing/
Respirator: not necessary if room is well ventilated/ in case of brief exposure use respiratory filter device/ in case of intensive or longer exposure, use respiratory protective device that is independend of circulating air
Health Effects: no irritating effects on skin and eyes/ no sensitizing effects known/ very toxic to aquatic life with long lasting effects
TLV/PEL: - Total Dust - OSHA PEL
LVE PPE:

CRSS: (8/24/2011 11:00:00 PM):
Chemical Name: Phosphoric trichloride, reaction products with [1,1'-biphenyl]-4,4'-diol and phenol
S-H2O: 0.000022 g/L @
VP: 5.0E-6 torr @
MW: 651 0.0%<500 0.0%<1000
Physical State and Misc CRSS Info:
Neat: Solid **Mfg:** NK: Imported
Proc/Form: Solid: 15% LVE substance in plastic **End Use:** Solid: LVE substance entrained in plastic. The submitter provides a compositional distribution for the LVE substance as follows [redacted] The MW and MF above are for the top structure as drawn. Submitted Data: White powder; MP = 62-84°C (DSC); BP > 400°C (DSC); VP < 4.8E-06 torr (Exp.); WS < 2.21E-5 g/L (Exp.); log P for the top structure = 5.86, log P for the bottom structure and higher MW components are above 6.2 (Exp., by HPLC); density = 1.34 g/cm3; not highly flammable; percent of material less then 100 micron in diameter = 2.46%; stable at pH 4 and 7, half life at pH 9 = 349 days.

Consumer Use: No

SAT (concerns): (8/25/2011 11:00:00 PM):

Migration to groundwater:
PBT rating: P2 **B**1 **T**1
Health: 1-2, Dermal, Inhalation (No testing desired)
Eco: 1, Water (All releases to water with a CC = 1 ppb) (No testing desired)

OCCUPATIONAL EXPOSURE RATING: 2-3B

NOTES & KEY ASSUMPTIONS:

Generated by the 06/07/2005 version of ChemSTEER. The LVEN is import only; therefore, manufacturing was not assessed. // The LVE was not bound, therefore, all assessments were made at 10,000 kg/yr. // The LVE is used as a flame retardant for various plastics (polycarbonate PC), polycarbonate/acrylonitrile/butadiene/styrene (PCABS) plastics. Once the LVE is compounded within the thermoplastic polymer pellets or product, no occupational exposures or environmental releases of the LVE are expected to occur since the PMN will be physically encapsulated and entrained in the compounded polymer. // SAT concerns were for dermal and inhalation exposures and all water releases with a CC = 1 ppb. // No end use information was provided by the submitter. The 2004 Generic Scenario for Plastics Converting was referenced for use rate, number of sites and media of release information. // No same submitter past cases were found. The following different-submitter, similar-use past cases were referenced for consistency: [redacted]. All past cases assessed inhalation exposure and dust releases from unloading of the solid PMN (consistent with this IRER). [redacted] did not assess exposures or releases to the chemical after it was compounded in the polymer (consistent with the current IRER).

POLLUTION PREVENTION CONSIDERATIONS:
None.

P2 REC:

EXPOSURE-BASED REVIEW: Yes **(0 criteria met)**

1) # of workers exposed: 220 **>1000?** No
2) >100 workers with > 10 mg/day inhalation exposure: No
3) (a) >100 workers w/1-10 mg/day inh. exp. & >100 days/yr: No
(b) Routine Dermal Cont: > 250 workers & > 100 days/yr: No

L-11-0347

Use: Flame retardant additive in thermoplastic polymers

Number of Sites/Location: [redacted]

Basis: Submission does not provide any end use information. The May 2004 GS for Plastics Converting estimates the use rate to be 36.2 kg/site-day (calculation: 552 million kg/yr (for Acryonitrile butadiene based plastics) / 12191 site in industry / 250 d/yr x 0.2 mass fraction for flame retardants = 36.2 kg/site day. Number of sites = PV/use rate/d/yr = 10,000 kg/yr / 36/2 kg/site-day/250 d/yr = 1.1 sites.

Process Description: Unload imported LVE (solid powder, assumed 100%) --> Mixing vessel and dosing (per submission, LVE is mixed to a [redacted] --> Extruder/Extrusion process --> Packaging of final flame retardant polymer pellets or finished articles --> LVE [redacted] (per CRSS). CEB did not assess industrial exposure and releases from potential further processing of the pellets because the LVE chemical will be physically encapsulated and entrained in the pellet (consistent with past case [redacted]). (per submission, CRSS and 2004 GS for Plastics Compounding)

ENVIRONMENTAL RELEASES ESTIMATE SUMMARY

IRER Note: The daily releases listed for any source below may coincide with daily releases from the other sources to the same medium. Note: migration is negl, per SAT.

Water or Air or Incineration or Landfill
Output 2: 1.0E+0 kg/site-day over 48 day/yr from [redacted] sites or 5.0E+1 kg/yr
to: Air, water, incineration, or land (dust model)
from: Unloading Solid Raw Material from Transport Containers
basis: CEB assesses dust releases per the 2007 Dust model - 0.5% release to air, water, incineration, or land.

Water or Incineration or Landfill
Output 2: 2.1E+0 kg/site-day over 48 day/yr from [redacted] sites or 10.0E+1 kg/yr
to: Uncertain
from: Cleaning Solid/ Powder Residuals from Containers Used to Transport the Raw Material
basis: EPA/OPPT Solid Residuals in Transport Containers Model, CEB standard 1% residual. No information was provided in the submission. CEB asumes release to water, incineation or landfill as conservative (consistent with GS).

Landfill
Conservative: 8.0E-1 kg/site-day over 250 day/yr from [redacted] sites or 2.0E+2 kg/yr
to: Uncertain
from: Equipment Cleaning Losses of Liquids from Multiple Vessels
basis: EPA/OPPT Multiple Process Vessel Residual Model, CEB standard 2% residual. No information was provided in the submission. CEB asumes release to water, incineation or landfill as conservative (consistent with GS).

RELEASE TOTAL

350 kg/yr - all sites

OCCUPATIONAL EXPOSURES ESTIMATE SUMMARY

Tot. # of workers exposed via assessed routes: 48
Basis:

Dermal:

Exposure to Solid
High End: 3.1E+3 mg/day over 250 days/yr
Number of workers (all sites) with Dermal exposure: 48
Basis: Unloading Solid Raw Material from Transport Containers; EPA/OPPT Direct 2-Hand Dermal Contact with Solids Model.

Inhalation:

Exposure to Particulate
Upper Bound: 1.5E+2 mg/day over 250 days/yr
Number of workers (all sites) with Inhalation exposure: 48
Basis: Unloading Solid Raw Material from Transport Containers; OSHA PNOR PEL-Limiting Model.

INHALATION MONITORING DATA REVIEW

1) Uncertainty (estimate based on model, regulatory limit, or data not specific to industry): Yes
2) (a) Exposure level > 1 mg/day? Yes
(b) Hazard Rating for health of 2 or greater? No
Inhalation Monitoring Data Desired? Yes (both criteria met)

INITIAL REVIEW EXPOSURE REPORT (IRExR)

Chemical ID: L-11-0347 **Reviewer: Wong/BC**

Results Table: Dose, Concentration, and Days Exceeded Results Summary

Exposure Scenario[1]			Water			Landfill	Stack Air		Fugitive Air	
Drinking Water			Fish Ingestion							
ADR		LADD	ADR	LADD	7Q10[4] CC = 1	PDM Days Exceeded	LADD	ADR	LADD	ADR	LADD
Release activity(ies)[2]; exposure calculation(s)[3]	mg/kg/day	mg/kg/day	mg/kg/day	mg/kg/day	µg/l	# Days	mg/kg/day	mg/kg/day	mg/kg/day	mg/kg/day	mg/kg/day
USE: max acute eco	---	---	---	---	**2.92E+02**	---	---	---	---	**2.57E-02**	---
USE: PDM1	---	---	---	---	**2.92E+02**	**47**	---	---	---	---	---

1 Exposure scenario titles consist of release activity followed by exposure calculation abbreviation.
2 Release activities are from engineering report's Manufacturing (Mfg), Processing (Proc) and Use release activity labels. Multiple release activities are combined in one exposure scenario if their releases occur at same location.
3 Exposure calculations are Acute Dose Rate (ADR), Lifetime Average Daily Dose (LADD), and Probabilistic Dilution Model (PDM). There may be one, two, or all three exposure calculations per exposure scenario. CC is the aquatic concentration of concern.
4 This column displays concentration values for the 7Q10 streamflow, which is defined as the average daily streamflow of the seven consecutive days of lowest flow within a ten year period.

Remarks:

INITIAL REVIEW EXPOSURE REPORT

Chemical ID: L-11-0347 Assessor: Wong/BC

ENVIRONMENTAL RELEASES

Scenario#:1 Number of Release Sites: [redacted].

Release Activity: USE: Max ADR

Release Description:	WATER	LANDFILL Non-sludge/Sludge	STACK	FUGITIVE
Total Releases:	148.80	N/A	N/A	48.00
	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)
		Non-sludge/Sludge		
Release Days/yr:	48.00	0.00/0.00	N/A	48.00
Per Site Release:	3.10	N/A/0.00	N/A	1.00
	(kg/site/day)	(kg/site/day)	(kg/site/day)	(kg/site/day)

Remarks:

INITIAL REVIEW EXPOSURE REPORT

Chemical ID: L-11-0347

SIC-CODE BASED HUMAN AND AQUATIC EXPOSURES TO SURFACE WATER RELEASES

SCENARIO #: 1 Number of Sites: [redacted] RELEASE ACTIVITY:USE: Max ADR

SIC-CODE DESCRIPTION: POTW's (All facilities)

SIC-CODE (S): 4952 EXPOSED POPULATION: Adult

WWT REMOVAL (%)	RELEASE DAYS	PRETREATMENT RELEASE (kg/site/day)	POSTTREATMENT RELEASE (kg/site/day)	DWT (%)	BCF (L/kg)
90.00	48.	3.1	0.31	0.00	0.00

AQUATIC EXPOSURE ESTIMATES - SURFACE WATER

PLANT TYPE	% ILE FACILITY	STREAM FLOW (MLD)				STREAM CONC. (µg/l)			
		Harmonic Mean	30Q5	7Q10	1Q10	Harmonic Mean	30Q5	7Q10	1Q10
ALL	50	125.56	44.02	26.80	22.53	2.47	7.04	11.57	13.76
ALL	10	11.11	1.94	1.06	0.96	27.90	159.79	292.45	322.92

DRINKING WATER AND FISH INGESTION EXPOSURE ESTIMATES

Exposure Units	Drinking Water Results		Drinking Water Units	Fish Ingestion Results		Fish Ingestion Units
	50%	10%		50%	10%	
Cancer						
$LADD_{pot}$	2.53E-06	2.86E-05	mg/kg/day	0.00	0.00	mg/kg/day
$LADC_{pot}$	1.30E-04	1.47E-03	mg/L	0.00	0.00	mg/kg
Acute						
ADR_{pot}	5.88E-04	1.34E-02	mg/kg/day	0.00	0.00	mg/kg/day

SIC Code Comments:

INITIAL REVIEW EXPOSURE REPORT

Chemical ID: L-11-0347

INHALATION EXPOSURE ESTIMATES (POST-TREATMENT)

SCENARIO #: 1 RELEASE ACTIVITY:USE: Max ADR

RELEASE DESCRIPTION:

METHOD OF CALCULATION: Screen3

EXPOSED POPULATION: Adult

Number of Sites:	[redacted]	
Per Site Fugitive Release:	1.00	kg/site/day
Fugitive Release Days per Year:	48.00	days
% Removal via Fugitive Release:	0.00	%
Total Fugitive Release:	48.00	kg/yr
Max Annual Average Air Concentration (Fugitive):	1.44	µg/m^3
Max 24 Hour Average Air Concentration(Fugitive):	140.00	µg/m^3
Per Site Stack Release:	NA	kg/site/day
Stack Release Days per Year:	NA	days
% Removal via Stack Release:	0.00	%
Total Stack Release:	NA	kg/yr
Max Annual Average Air Concentration (Stack):	0.00	µg/m^3
Max 24 Hour Average Air Concentration (Stack):	0.00	µg/m^3

Exposure Units	Results (Stack)	Results (Fugitive)	ASSUMPTIONS			
			ED (years)	AT (years)	BW (kg)	Inh. Rate (m^3/hr)
Cancer						
$LADD_{pot}$ (mg/kg/day)	N/A	1.06E-04	30.00	75.00	71.80	0.55
$LADC_{pot}$ (mg/m^3)	N/A	5.76E-04	30.00	75.00	NA	NA
Acute						
ADR_{pot} (mg/kg/day)	N/A	2.57E-02	NA	1 day	71.80	0.55

Inhalation Comments:

Stack Parameter Data		Fugitive Parameter Data		
Stack Height	10.00	Release Height:	3.00	m
Inside Stack Diameter:	0.10	Length of Release Opening:	10.00	m
Stack Gas Exit Velocity:	0.10	Width of Release Opening:	10.00	m
Stack Gas Temperature:	293.00			

Meteorological and Terrain Information:

Surrounding Land Use:	Rural	
Terrain Height:	0.00	m
Distance to Residence of Interest:	100.00	m
Meteorological Class:	Full	
Stability Class:	NA	
Wind Speed:	NA	

Downwash Information:

Facility Length:	NA	m
Facility Width:	NA	m
Facility Height:	NA	m

INITIAL REVIEW EXPOSURE REPORT

Chemical ID: L-11-0347 Assessor: Wong/BC

ENVIRONMENTAL RELEASES

Scenario#:2 Number of Release Sites: [redacted]

Release Activity: USE: PDM1

Release Description:	WATER	LANDFILL Non-sludge/Sludge	STACK	FUGITIVE
Total Releases:	148.80	N/A	N/A	0.00
	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)
		Non-sludge/Sludge		
Release Days/yr:	48.00	0.00/0.00	N/A	0.00
Per Site Release:	3.10	N/A/0.00	N/A	0.00
	(kg/site/day)	(kg/site/day)	(kg/site/day)	(kg/site/day)

Remarks:

INITIAL REVIEW EXPOSURE REPORT

Chemical ID: L-11-0347

SIC-CODE BASED HUMAN AND AQUATIC EXPOSURES TO SURFACE WATER RELEASES

SCENARIO #: 2 Number of Sites: [redacted] RELEASE ACTIVITY:USE: PDM1

SIC-CODE DESCRIPTION: POTW's (All facilities)

SIC-CODE (S): 4952 EXPOSED POPULATION: Adult

WWT REMOVAL (%)	RELEASE DAYS	PRETREATMENT RELEASE (kg/site/day)	POSTTREATMENT RELEASE (kg/site/day)	DWT (%)	BCF (L/kg)
90.00	48.	3.1	0.31	0.00	0.00

AQUATIC EXPOSURE ESTIMATES - SURFACE WATER

PLANT TYPE	% ILE FACILITY	STREAM FLOW (MLD)				STREAM CONC. (µg/l)			
		Harmonic Mean	30Q5	7Q10	1Q10	Harmonic Mean	30Q5	7Q10	1Q10
ALL	50	125.56	44.02	26.80	22.53	2.47	7.04	11.57	13.76
ALL	10	11.11	1.94	1.06	0.96	27.90	159.79	292.45	322.92

DRINKING WATER AND FISH INGESTION EXPOSURE ESTIMATES

Exposure Units	Drinking Water Results		Drinking Water Units	Fish Ingestion Results		Fish Ingestion Units
	50%	10%		50%	10%	
Cancer						
$LADD_{pot}$	2.53E-06	2.86E-05	mg/kg/day	0.00	0.00	mg/kg/day
$LADC_{pot}$	1.30E-04	1.47E-03	mg/L	0.00	0.00	mg/kg
Acute						
ADR_{pot}	5.88E-04	1.34E-02	mg/kg/day	0.00	0.00	mg/kg/day

SIC Code Comments:

INITIAL REVIEW EXPOSURE REPORT

Chemical ID: L-11-0347

SIC CODE EXPOSURES TO SURFACE WATER RELEASES

SCENARIO #: 2 RELEASE ACTIVITY: USE: PDM1

SIC CODE DESCRIPTION: POTW's (All facilities)

ASSOCIATED SIC CODES: 4952

SIC CODE RESULTS

COC (µg/L)	Percent of Year COC Exceeded	Number of Days COC Exceeded	Release days/year	Loading (kg/site/day)	Waste Water Treatment (%)	High/Avg Analysis
1.00	13	47	48.00	3.10	90.00	High